

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
23 June 2005 (23.06.2005)

PCT

(10) International Publication Number  
**WO 2005/057471 A1**

(51) International Patent Classification<sup>7</sup>: **G06K 7/10**,  
G06F 3/033

(21) International Application Number:  
PCT/SE2004/001864

(22) International Filing Date:  
15 December 2004 (15.12.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
0303351-1 15 December 2003 (15.12.2003) SE  
60/529 118 15 December 2003 (15.12.2003) US  
60/586 083 8 July 2004 (08.07.2004) US  
0401802-4 8 July 2004 (08.07.2004) SE

(71) Applicant (for all designated States except US): ANOTO  
IP LIC HB [SE/SE]; Scheelevägen 19 C, S-223 70 Lund  
(SE).

(72) Inventors; and

(75) Inventors/Applicants (for US only): CRAVEN-BAR-  
TLE, Thomas [SE/SE]; Sakförarevägen 6, S-226 57

Lund (SE). WASSVIK, Ola [SE/SE]; Helgeandsgatan 18  
B, S-223 64 Lund (SE). GREDINGER, Peter [SE/SE];  
Näsbyholm 14, SE-274 94 Skurup (SE). STRÖMBERG,  
Ola [SE/SE]; Kornheddinge 3, S-245 91 Staffanstorps (SE).

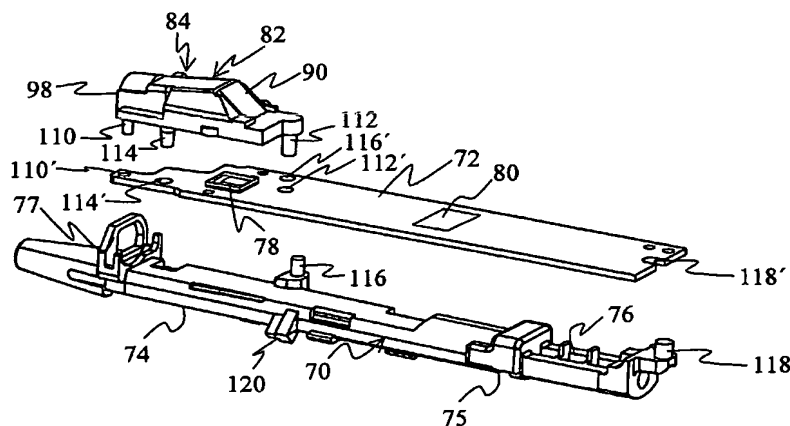
(74) Agent: AWAPATENT AB; Box 5117, S-200 71 Malmö  
(SE).

(81) Designated States (unless otherwise indicated, for every  
kind of national protection available): AE, AG, AL, AM,  
AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,  
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,  
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,  
KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,  
MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG,  
PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM,  
TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM,  
ZW.

(84) Designated States (unless otherwise indicated, for every  
kind of regional protection available): ARIPO (BW, GH,  
GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,  
ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),  
European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI,  
FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO,

[Continued on next page]

(54) Title: AN OPTICAL SYSTEM, AN ANALYSIS SYSTEM AND A MODULAR UNIT FOR AN ELECTRONIC PEN



(57) Abstract: A modular unit is designed for an electronic pen. The modular unit comprises a carrier (70) with a receiver for a writing implement, a printed circuit board (72), a two-dimensional radiation sensor (78) mounted on the printed circuit board, and an imaging unit (82) which defines an image plane. The carrier (70), the printed circuit board (72), and the imaging unit (82) are joined together with the imaging unit (82) facing the radiation sensor (78) to locate the image plane at the radiation sensor (78). The modular unit may comprise an analysis system dedicated to a particular optical analysis application, such as position determination based on images of a position-coding pattern. A radiation source, such as an LED or a laser diode, may be arranged on the printed circuit board or mounted in a holder on the imaging unit. The imaging unit (82) may be implemented as a boresight unit for controlling the spatial origin of radiation transmitted towards the radiation sensor (78). The boresight unit may comprise a radiation-transmitting channel, an imaging lens, and a redirecting mirror in the channel.

WO 2005/057471 A1



SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

**Declarations under Rule 4.17:**

- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR,

HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)

- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii)) for all designations
- of inventorship (Rule 4.17(iv)) for US only
- of inventorship (Rule 4.17(iv)) for US only
- of inventorship (Rule 4.17(iv)) for US only
- of inventorship (Rule 4.17(iv)) for US only

**Published:**

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.